Tempest FX User Manual

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Introduction

Congratulations and thank you for choosing the CoachComm Tempest® FX wireless headset system. CoachComm is the undisputed leader in coaches' communications with more than 97% of D1-A college football programs using our systems. Now CoachComm brings our experience, expertise, and commitment to quality to a broad range of football programs on every level with Tempest FX. Using unrivaled technology, Tempest FX offers the same powerful technology that our D1-A customers rely on each game day. In order to get the most out of your new Tempest FX system, please take a few moments to read this manual completely so that you better understand the operation of this product. For questions not addressed in this manual, feel free to contact CoachComm directly. CoachComm support and service personnel are ready to assist you.

General Description

The CoachComm Tempest FX wireless headset system is a secure and reliable sideline-to-press-box full duplex communication system. The same Tempest wireless technology is used by more than 100 D1-A programs each game day. The system is comprised of a main press box unit, Wired and Wireless BeltPacks, and multiple antenna options. The Tempest FX remote antenna system provides flexibility in challenging stadiums where optimal line-of-sight is difficult to achieve. The Tempest FX wireless system uses noise-suppression technology, which allows every member of your coaching staff to communicate clearly even in high noise situations. As many as 12 coaches in the press box and an unlimited number of wireless field coaches can talk on up to four different channels of communication (conversations). Each Wireless BeltPack is highly customizable for each coach's preferred settings.

System Features

- No FCC license or frequency coordination required. Advanced digital FHSS technology does all the work for you.
- Full duplex communication with hands-free operation. Full duplex means that multiple coaches can be speaking at the same time, and everyone will be heard.
- Up to 12 coaches in the press box and up to 10 wireless coaches on the field in full duplex (5 per FX BaseStation.) An unlimited number of wireless coaches can be added to the system in a limited push-to-talk/listen capacity.
- Wireless BeltPacks are highly customizable, and settings can be set to each coach's preference.
- The LCD display on the Wireless BeltPacks provide real-time status of the BeltPack's signal strength, link quality, battery life, channel options, and more.
- Capable of up to four separate channels (conversations).
- All coaches, whether on the field or in the press box, can have access to any channel.
- Wireless BeltPacks are powered by rechargeable/removable Lithium batteries.
- Batteries take 2–3 hours to fully charge and have an operating time of 8–9 hours; batteries charge via a 5-bay charger.
- BeltPacks also accept (3) AA batteries as a backup to the rechargeable Lithium batteries.
- The Remote Transceiver and antenna system can be remotely located up to 1500 feet from the main press box unit.

System Overview

Number of Users – The Tempest FX system supports up to 12 coaches in the press box and an unlimited number of Wireless BeltPacks. Each Tempest FX BaseStation can support up to 5 Wireless BeltPacks operating in normal, full duplex communication. However, Tempest FX can also support an unlimited number of Wireless BeltPacks on a single BaseStation when operating in "Split" mode. When in this mode, some Wireless BeltPacks are put into a "Shared" mode and operate as listen/push-to-talk and on a single channel. This can be a useful approach for single BaseStation systems where more than 5 Wireless BeltPacks are needed. For more information on "Split/Shared" mode operation, contact CoachComm.

Tempest FX on Both Sidelines – Every Tempest FX system is uniquely configured at CoachComm. This uniqueness is created by a series of key codes called Network Numbers and Lockout Keys. These numbers will never match from system to system. Even systems consisting of two BaseStations will have varying (but coordinated) Network Numbers and Lockout Keys. The Network Number (0-63) determines each BaseStations' hopping patterns within the frequency band. The Lockout Key (0-255) is an added security code to ensure no two BaseStations or systems match.

System Range – The Tempest FX system has an operating range of greater than 1000 feet under ideal conditions. Under normal operating conditions in typical high school and college stadiums, system range should be more than adequate to support both home and away sideline operation. To maximize range and avoid noise or drop-outs, a clear line of sight should exist between the system's antenna and the BeltPacks on the field.

Unpacking

Your new CoachComm Tempest FX wireless headset system comes complete with everything you need to get started. Please take a few moments to unpack your system and check the accuracy of its contents. Below is the list of items that you should have received. *(Please note that the exact items and the quantity of what you receive will vary depending on the number of wired and wireless coaches in your system.)*

Press Box Case

- Press Box Main Unit (3RU), which houses the Tempest FX BaseStation(s) and Tempest Wired Interface
- Tempest Wired BeltPack(s)
- Tempest FX Remote Transceiver(s)
- Omni-Directional (Whip) Antenna(s)

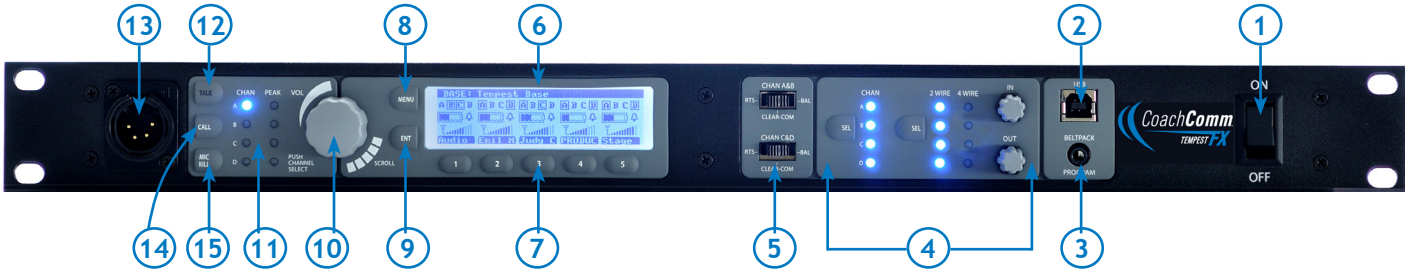
Accessory Case (Press Box accessories)

- Multi-colored Cat 5 Cable Bundle for Wired BeltPacks
- Directional Antenna Kit(s)
- Headsets

Sideline Case

- Wireless BeltPack(s)
- 5-Bay Charger(s) with power supply
- Additional Batteries
- Headsets

Tempest FX BaseStation



Front

1 - ON/OFF Switch

2 - USB Programming Port (firmware updates)

3 - BeltPack Program Port

4 - Wired Intercom Interface (A-D)

5 - Intercom Select Switches

6 - LCD Display

7 - BeltPack Settings Access Buttons (1-5)

8 - MENU Button

9 - ENT (Enter) Button

10 - Base Local Volume/Channel Button and Scroll knob (This multi-purpose knob serves several purposes. It is the volume control for the Local Headset port and can be pressed to change the channels of the Local Headset port. It also acts as a Scroll knob during menu navigation.)

11 - Local Headset Channel LEDs

12 - Local Headset Talk Button

13 - Local Headset Port

14 - CALL Button

15 - MIC KILL Button

Back

1 - AC Power In

2 - DC Power In

3 - Antenna Port

4 - Wired Intercom Connections (A-D)

5 - Stage Announce (SA)

6 - Aux In

7 - Aux Out

8 - Base Sync In

9 - Base Sync Out

10 - LAN Port

11 - Relay Connector

12 - Transceiver Port

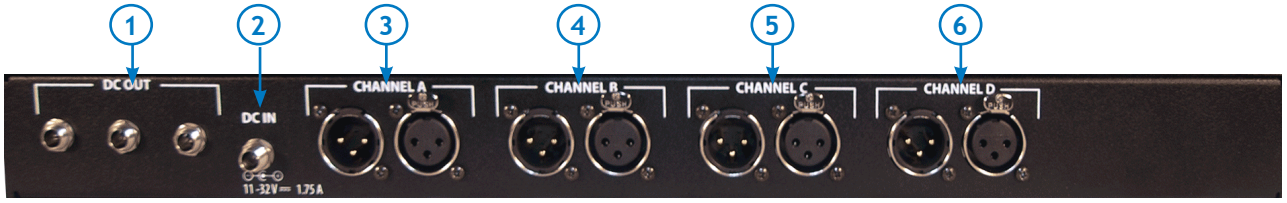
Tempest Wired Interface (TWI)

Front

1 - Power LED

2 - Channel A/B Ports (1-6)

3 - Channel C/D Ports (1-6)



Back

1 - DC Power Out

2 - DC Power In

3 - Channel A XLRs

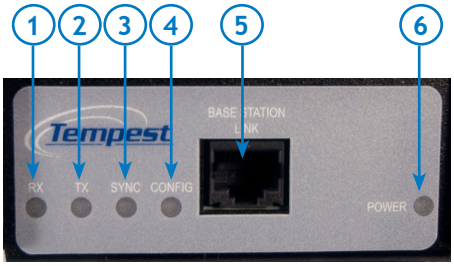
4 - Channel B XLRs

5 - Channel C XLRs

6 - Channel D XLRs

Remote Transceiver (RT)

1 - RX (Receive) LED
2 - TX (Transmit) LED
3 - SYNC LED
4 - CONFIG (Configuration) LED
5 - BASESTATION LINK (RJ-45)
6 - POWER LED
7 - Antenna Port



Wired BeltPack

1 - On/Off/Volume Control
2 - Channel 1 and 2 LEDs (Blue)
3 - Talk LED (Green)
4 - Channel 1 Button
5 - Channel 2 Button
6 - TALK Button
7 - Headset Connector (Bottom)
8 - Wired BeltPack RJ-45 Connector (Bottom)

Wireless BeltPack

Front

1 - A/B TALK Button
2 - C/D TALK Button
3 - A/B Channel/Volume Knob
4 - C/D Channel/Volume Knob
5 - MENU Button
6 - ENTER Button
7 - LCD Display
8 - Program/USB Ports
9 - CALL Button
10 - Headset Connector (Bottom)

Back

1 - Power Button
2 - Battery Compartment
3 - Battery Door

Equipment Setup

Press Box Main Unit

1. Unpack all of the Press Box Case contents that are needed for the game so that you can use it as a setup surface for the main rack unit in the event there is no table or bench available.
2. Position the main unit in the press box in a secure area on a table or the case so that it is out of the way from the coaching area. It is best to get the unit off the floor to provide easier access to it and the display screens.
3. Locate the nearest standard 110VAC power outlet and try to position the main unit near it, if possible, but be sure the unit remains out of the way of the coaches. Connect power adapter/cord into the wall outlet (or power strip connected to wall outlet.) The "Power" LED on the front of the Tempest Wired Interface should be lit green. *Note: Do not turn on the Tempest FX BaseStation(s) at this time; if they come on, simply turn them off.*

Antenna System

The Tempest FX system comes with two antenna options: an Omni-directional (whip) Antenna and a Directional Antenna. It is recommended that you use the Directional Antenna System in conjunction with your Remote Transceiver.

1. Locate and unpack the Directional Antenna Kit (antenna, mounting hardware, and co-axial antenna cable.)
2. Mount your Directional Antenna in a location to achieve the optimal line-of-sight to the field. The antenna must be able to see the field in order to achieve a proper signal. *Note: Any obstructions between the antenna and field (such as window tinting) can impact performance negatively; if it is possible to mount your antenna externally from the press box, it is best to do so. If windows do not open, try and locate an access point to the roof, a video deck, or something similar.*
3. Point the Directional Antenna so that it is pointing toward the field and the sideline where your coaches will be located. The antenna should be positioned with its "fins" running top-to-bottom (see Figure 1A).
4. Locate the co-axial antenna cable and connect the (larger) N-Connector to the rear antenna port of the Directional Antenna. Be careful not to cross-thread the connector.
5. Locate your Remote Transceiver and mount it near the Directional Antenna. When using the Directional Antenna, the Remote Transceiver does not have to have line-of-sight with the field (only the antenna does), but the Remote Transceiver must reside nearby due to the length limitations of the co-axial antenna cable.

Figure 1A

6. Connect the (smaller) RP-TNC end of the co-axial antenna cable to the antenna port on the top of the Remote Transceiver. Be sure not to cross-thread the connector.
7. Use the provided Cat 5 Remote Transceiver cable to connect the Remote Transceiver to the corresponding BaseStation. The RJ-45 connections can be found on the bottom of the Remote Transceiver (labeled as BASESTATION LINK) and the rear of the BaseStation.
8. If your system has two BaseStations, repeat steps (1–7) for the second BaseStation and Antenna System.

Tempest Wired Interface & Wired BeltPacks

1. Determine where each of your coaches will sit in the press box and place a headset and Wired BeltPack at each position.
2. Locate the bundled Wired BeltPack Cat 5 cabling. One end of the bundle will have approximately one foot of cabling exposed, and the other end will have approximately six feet of cabling exposed. The short end is intended to go into the Tempest Wired Interface, and the longer end is designed to go to the Wired BeltPacks. *Note: Each bundled Wired BeltPack cable has six individual Cat 5 cables wrapped in it.*
3. Plug the "short end" of the cabling into the desired channels (A/B or C/D) on the front of the Tempest Wired Interface.
4. Run the cable to the coaching area of the Press Box and be sure to keep cabling out of the way as much as possible to prevent tripping or snagging the cable. Run it along the base of the wall, under the tabletop, and generally out of high traffic walkways. Use tape if necessary to ensure proper cable management.
5. Run the "longer end" of the cable to the center of the coaching area and run each connection to the desired coaching position and connect into their respective Wired BeltPacks. The exposed 6 ft. should provide a wingspan reach of 12 ft.
6. Take one Wired BeltPack and connect a headset to the headset connector on the bottom of the Wired BeltPack. Put the headset on and position the microphone boom directly in front of your mouth.
7. Turn on the Wired BeltPack by rotating the On/Off/Volume control on the top of the Wired BeltPack clockwise. The channel "1" LED should be lit blue, indicating that the Wired BeltPack has power.
8. Press the round TALK button located on the front of the Wired BeltPack. The "T" LED should light green, then speak with a normal voice into the microphone and adjust the On/Off/Volume control so that you hear your voice in the headset at a comfortable level.
9. Press the channel "2" button to ensure the channels are functioning properly. The selected channel will be indicated by either the "1" or "2" LED being lit blue. To lock a Wired BeltPack into a single channel, the unit must be turned off and back on while either the channel "1" or "2" button on the Wired BeltPack is being held down. *Note: Channel "1" corresponds to either channel "A" or "C," and channel "2" corresponds to either channel "B" or "D" of the Tempest Wired Interface.*
10. Repeat steps (6-9) for all other Wired BeltPacks.

Wireless BeltPacks (on the Field)

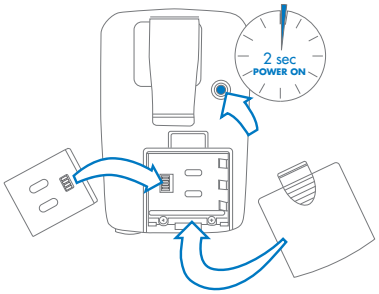


Figure 2A

1. Each coach on the field will need a Wireless BeltPack to communicate on the Tempest FX system. On the sideline, unpack each Wireless BeltPack and headset, and lay them out on a bench or table.
2. Turn on a Wireless BeltPack by holding down the ON/OFF button on the rear of the BeltPack for two seconds (see Figure 2A).
3. Be sure to start with fully-charged batteries each game. Check the battery gauge on the top right of the LCD display screen. If the battery level is low, replace the battery. Be sure to power off the Wireless BeltPack prior to removing the battery.
4. To remove the battery, slide the battery door off, turn the BeltPack so that the battery is facing down and pat 1-2 times into the palm of your hand. The battery should fall out of the BeltPack. *Note: Tempest FX Wireless BeltPacks come with rechargeable Lithium batteries but can also operate on (3) AA batteries in the event the Lithium batteries are not charged or lost.*
5. Once you have replaced the battery, power on the Wireless BeltPack again and connect a headset to the 4-pin XLR connector on the bottom of the Wireless BeltPack. Put the headset on your head and position the microphone boom directly in front of your mouth as close as it will go without touching your lips.
6. Press the TALK button for any of the active channels displayed on the LCD screen and speak into the microphone and confirm that you can hear yourself. Adjust the volume as necessary.
7. Repeat steps (2-6) for all other Wireless BeltPacks.

System Operation

Tempest Wired Interface

CoachComm's Tempest FX Press Box Main Unit comes pre-configured and easy to use with a very low learning curve. The main unit's interconnectivity between the Tempest Wired Interface and the Tempest FX BaseStation(s) is pre-wired at CoachComm. Once you have completed the system setup procedures listed under Equipment Setup (pages 10-11) your main unit is ready to use. The following operational tips and system features should help you get the most out of your Tempest FX system.

Tempest Wired Interface (TWI) Power – There is no power switch on the TWI. The power to the TWI comes on when it is plugged into an AC wall outlet. The power to the TWI is considered the "main power" source for the Press Box Main Unit, and the (green) "Power" LED on the front of the TWI indicates whether power is on or off. The AC power goes through a DC power supply and then into the "DC IN" of the TWI. The power is then routed from the rear of the TWI to each BaseStation. If a BaseStation is not powering on, then there is a possibility one of these connections is loose.

A/B Channel Ports – There are (6) access ports for channels A/B on the front of the TWI. These ports are for connecting Wired BeltPacks via a Cat 5 (RJ-45) connection. When connected to these ports, all users will have communication with anyone on channels A/B throughout the Tempest FX system.

C/D Channel Ports – There are (6) access ports for channels C/D on the front of the TWI. These ports are for connecting Wired BeltPacks via a Cat 5 (RJ-45) connection. When connected to these ports, all users will have communication with anyone on channels C/D throughout the Tempest FX system.

Tempest FX BaseStation

On/Off Switch (on BaseStation) – The On/Off switch on the front of the Tempest FX BaseStation(s) controls the power for the BaseStation(s), but not the Tempest Wired Interface. It is best to leave the power switch in the "Off" position until the antenna systems have been properly connected to each BaseStation.

USB and Program Ports – The Tempest FX BaseStation has two programming ports. The "USB" port is used to update BaseStation firmware released by CoachComm. This is performed using a USB to USB-B cable. The "Program" port is used to pair Wireless BeltPacks to BaseStations. This is performed using a standard 1/8" to 1/8" mini-stereo cable.

Chan A&B and C&D – These switches are set at the factory and should remain in the default position. If the system uses a Tempest Wired Interface in conjunction with the Tempest FX BaseStations, then the setting should be set to "Clear-Com." Failure to maintain proper position of this switch can result in operational issues and poor performance of the system. For more assistance on this operation, please contact CoachComm Customer Support.

2-Wire/4-Wire Interface – These controls allow adjustments to the audio levels for each channel coming in or going out of the BaseStation. These settings and levels are configured at the factory for the coaching application. For more information or if you require assistance with this, please contact CoachComm Customer Support.

LCD Display – The LCD Display on the BaseStation provides the real-time status of any BeltPack that is operating on the system during normal operation. When in Menu Mode, it serves as an interface with the BaseStation menu options. To access Menu Mode, press the MENU button.

Volume Control/Scroll/Enter – The Volume Control (VOL) knob adjusts the audio level you hear in the headset for that particular BaseStation's local headset port. This control only affects the audio you hear; it has no effect at all on the outbound audio going to the other coaches on the system. This knob also functions as a "Scroll" knob when in Menu Mode; pressing the knob in Menu Mode functions the same as the ENT button.

Local Headset Port – Each Tempest FX BaseStation has a local headset port with channel and talk button controls. This headset port is not part of the original system configuration, but it can be used by simply plugging a headset into the port (no BeltPack required).

Use the (gray) VOL knob to adjust volume of headset and change the channel that the user talks or listens on. To talk, press the TALK button.

Remote Transceiver

Antenna Port – This port is the connection point for the whip antenna or the RP-TNC end of the co-axial antenna cable.

BASESTATION LINK (RJ-45) – The BASESTATION LINK RJ-45 connector is used to connect the Remote Transceiver to the BaseStation via standard Cat 5 cable with RJ-45 connectors.

RX, TX, SYNC, CONFIG, and POWER LEDs – The RX (Receive) LED illuminates when data is being received by the Remote Transceiver. The TX (Transmit) LED illuminates when data is being sent from the Remote Transceiver. The SYNC LED illuminates when the Transceiver Sync signal is present. The POWER LED illuminates when the BaseStation is providing adequate power to the Transceiver over the Cat 5 cable. All four of these LEDs are green and will remain illuminated during normal system operation. The amber colored CONFIG (Configuration) LED illuminates only when the BaseStation puts the Remote Transceiver into configuration mode to change settings. This LED should be illuminated for only a few seconds when first powered on, and off during normal operation.

Wired BeltPacks

Tempest Wired BeltPacks have been designed to be easy to use with a very low learning curve. Once you have completed the system setup procedures under the Equipment Setup on pages 10-11, your Wired BeltPack is ready to use. The following operational information should help you get the most out of your Wired BeltPack.

On/Off/Volume Control – The On/Off/Volume Control knob on the top of the Wired BeltPack serves two main functions. First, it is the On/Off switch for the BeltPack. To turn on the BeltPack, turn the knob clockwise and watch for the LEDs on the front to come on. To turn the BeltPack off, turn the knob all the way in a counterclockwise direction until you feel a click. All of the lights on the BeltPack should go off and you should not hear any audio in the headset. The other function this control knob serves is to adjust the audio level you hear in the headset. This control only affects the audio you hear; it has no effect at all on the outbound audio going to the other coaches on the system.

Headset Connection – The headset is connected to your Wired BeltPack via the 4-pin XLR connector on the bottom of the BeltPack. Push the headset connector all the way into the bottom of the BeltPack until you hear a click. Do not force the connector. The audio level will vary depending on the type of headset being used.

TALK Button – The TALK button toggles the microphone of the headset on or off. The Talk LED, which is located directly above the TALK button, will light green whenever the microphone is on. When the Talk LED is on, anything you say into the headset microphone will be communicated to all other coaches on the system that are on the same channel to which your BeltPack is set. You can push the TALK Button to turn on the Talk LED and forget it, or you can use it as a momentary mute function to have off-line conversations during the game.

Channel Select Buttons – Pushing either the channel "1" button or the channel "2" button will set the BeltPack to that communication channel (indicated with blue "1" or "2" LEDs above each button). Channel "1" on the Wired BeltPack will correspond to either channel "A" or "C" of the Tempest Wired Interface, depending on where the unit is connected. Similarly, channel "2" of the Wired BeltPack will correspond to either channel "B" or "D." The Tempest Wired BeltPack now offers a channel-lock feature that allows coaches to be locked onto a single channel as opposed to having access to both channels. See the section on "Equipment Setup" for more information. *Note: Only coaches who are on the same communication channel (A/B/C/D) will be able to hear each other.*

Wireless BeltPacks

Once you have completed the system setup procedures under the Equipment Setup on pages 10-11, your Wired BeltPack is ready to use. The following operational information should help you get the most out of your Wireless BeltPack.

Power Button – The Power ON/OFF button is located on the rear of the BeltPack. Press and hold the Power ON/OFF button for two seconds to turn the BeltPack on. Press for four seconds to turn the BeltPack off.

TALK Buttons – There are two TALK buttons on each Wireless BeltPack, one for channels A/B and the other for channels C/D. The TALK button enables the headset microphone for the assigned intercom channels. Tempest uses an intelligent latching method for TALK buttons. Pressing the TALK button once and releasing (i.e., tapping) will cause the TALK button to latch. Pressing and holding the TALK button will cause the button to act in a momentary mode. Talk tones can be enabled or disabled per BeltPack. If enabled, users will hear a tone each time the TALK button is pressed. If either set of channels (A/B or C/D) are disabled entirely, the TALK button for that channel is automatically disabled. *Note: The blue LED on each Talk button will flash (on the active channel) when TALK is disabled and remain solid when TALK is latched.*

Volume Knobs/Channel Buttons – In Operational Mode, rotating the Volume control adjusts the volume of the audio. Volume indicators appear on the display (OFF-25) during adjustment. The Volume control has an option to be set to "Volume Press" where it requires a "press and turn" to adjust the volume level. The "Volume Press" option can be adjusted under the "Set Controls" section of the BeltPack menu.

Pressing the Volume knob "CH A/B" and "CH C/D" changes the channels from A, B, C, or D respectively. If using more than two channels at a time, it is recommended that the BeltPacks operate in "Single Channel" mode. This will prevent the BeltPack user from hearing two separate channels at the same time. The channel function also has a channel "Delay Switch" option, which requires the knob to be pressed and held slightly longer in order to switch from one channel to the other. This feature can be enabled under the "Set Controls" section of the BeltPack menu.

In Menu Mode, turning either Volume control allows the user to scroll the options of the current menu screen. Pressing the Volume control selects the option.

MENU Button – Pressing MENU while the BeltPack is in Operational mode will select Menu Mode, and the Main Menu screen will be displayed on-screen. Once in Menu Mode, pressing MENU again will act as an escape key and will back out of the current menu screen, moving the user up one level. Pressing the MENU button while at the Main Menu screen will exit Menu Mode and return to Operational mode. The menu can be locked via a "Menu Lock" feature per BeltPack.

ENTER Button – The ENTER button operates differently depending on the mode of the BeltPack. In Menu Mode, pressing the ENTER button selects the current menu option and is the same as pressing a Volume control. A menu item is not selected until the ENTER button (or Volume control) is pressed.

CALL Button – The CALL button feature (when enabled) allows a BeltPack user to send an audible or vibrating signal to other Wireless BeltPacks on the same channel. This feature is disabled by default, and additional settings must be changed at the BaseStation to implement. For more information on the CALL button, please contact CoachComm Support.

Headset Connection – The 4-pin XLR male headset connector connects with most dynamic or electret headsets that have 4-pin XLR female connectors. The mic detect circuit (dynamic/electret) will indicate dynamic when it sees a load of 600 Ω or less. It will indicate an electret when it sees 1000 Ω or greater. Between 600 Ω and 1000 Ω is not recommended, as it may not accurately detect mic type. The Tempest FX system comes standard with a dynamic mic headset.

Battery Compartment – The Battery Compartment holds either (1) Tempest Lithium-Polymer rechargeable battery or (3) standard AA batteries. To remove the battery door, press down on the thumb markings and slide the battery door toward the bottom of the BeltPack. To remove batteries from the battery compartment, turn the BeltPack battery side down and tap the bottom of the BeltPack on the palm of your other hand. Also, please be careful to insert alkaline AA batteries (in the same direction) according to the marked polarity. If the battery cover does not fit or close properly, the battery may not be inserted correctly. *Note: Using AA batteries will provide you with approximately 4 hours of operation.*

USB and Program Ports – The Tempest FX BaseStation has two programming ports. The "USB" port is used to update BaseStation firmware released by CoachComm. This is performed using a USB to USB-B cable. The "Program" port is used to pair Wireless BeltPacks to BaseStations. This is performed using a standard 1/8" to 1/8" mini-stereo cable.

Game Day QuickStart

1. **Set Up the Main Unit**
   a. Unpack Rack Unit, antennas, Wired BeltPacks, and other accessories.
   b. Position the Main Unit out of the way to avoid coaches and other traffic.
   c. Plug the main rack unit in, but do NOT turn on power to BaseStation(s).
2. **Mount Antenna System(s)**
   a. Mount the Directional Antenna using the provided mounting options so that line-of-sight is achieved from the antenna to the field. Any obstructions to line-of-sight will impact performance.
3. **Mount the Remote Transceiver with or near Directional Antenna**
   a. Connect Directional Antenna to Remote Transceiver using black coaxial antenna cable.
   b. Connect Remote Transceiver to BaseStation using a (blue Cat 5) transceiver cable (one Remote Transceiver/Antenna per BaseStation).
   c. While observing the bottom LEDs of the Remote Transceiver, turn ON the BaseStation and confirm that the (amber) Config LED comes on and then back off. *Note: If you have a two-BaseStation system, turn on and configure one BaseStation at a time.*
   d. Repeat Step 2 for additional Antenna System (if applicable).
4. **Connect Cables, Wired BeltPacks, and Headsets**
   a. Connect the Wired BeltPack (Cat 5) cabling to desired channels on front of Tempest Wired Interface (A/B or C/D).
   b. Connect the opposite end of the Wired BeltPack cabling to each Wired BeltPack.
   c. Plug a headset into each Wired BeltPack.
   d. Turn ON the Wired BeltPacks and confirm power.
5. **Test Wired BeltPack Communication (requires 2 people)**
   a. Put on a headset and press the Talk (T) button on the Wired BeltPack to which the headset is connected, and confirm you can communicate to a second Wired BeltPack on both channels with no crosstalk.
   b. Repeat test for each Wired BeltPack and headset combination.
6. **Set Up Wireless BeltPacks (on sideline)**
   a. Unpack headsets and Wireless BeltPacks and lay them out across a bench or table.
   b. If needed, replace batteries with fully charged batteries.
   c. Connect a headset to each Wireless BeltPack.
   d. Power ON the BeltPacks and confirm that each unit logs into its respective BaseStation.
7. **Walk Test Wireless BeltPacks (requires 2 people)**
   a. Put on a headset and Wireless BeltPack combination.
   b. Press the Talk button for the active channel on the top of the Wireless BeltPack and confirm you can communicate to a second Wireless BeltPack on the same channel (A, B, C, or D). *Note: The available channels will be based on your system's configuration. If your system only operates on A/B, then C/D will likely be disabled.*
   c. Each tester should walk their Wireless BeltPack to opposite goal lines and back, ensuring clear communication with the other tester. Always place the Wireless BeltPack on the hip opposite from the press box when walk testing. This will help simulate body-blocking and better inform you if the BeltPack is operating properly.
   d. Repeat this walk test for each Wireless BeltPack.

Game Day Tips

Avoid surprises and know your surroundings – When possible, always conduct a site visit to the venues you will be visiting. This will help you prepare for proper antenna placement and any work-arounds that may be needed due to existing conditions. If a site visit is not possible, contact your opponent and find out as much as you can about the size of the booth, power availability, and the type of windows in the booth. Also, always coordinate with others who may be using wireless systems on game day so they are aware of your system and vice versa. Eliminating the unknown can be a game changer.

Batteries – Charge them prior to game day! In addition to your rechargeable Tempest batteries, Tempest Wireless BeltPacks will also operate using (3) AA batteries for approximately 4 hours. It is recommended you keep a backup supply of AA batteries.

Test, test, and test! – Be sure to give yourself ample time to not only set up your communication system but also test the system. Extensive testing can be done by you and one other person. You can never test too much. Walk each Wireless BeltPack from goal line to goal line while keeping the BeltPack on your hip opposite the press box/antenna. This will help simulate body-blocking and better inform you if the BeltPack is operating properly.

Post game breakdown – Be sure to take time in breaking down and properly stowing your headsets and BeltPacks after the game. Not properly packing up your gear can lead to the equipment getting damaged. Never pack up anything that is wet. If wet, remove batteries from BeltPacks and dry everything off with a towel. Excessive moisture should be allowed to air dry prior to packing whenever possible. Take care of your program's investment, and it will take care of you!

Battery Statement

The Tempest Battery is a 2000 mAh Lithium-Polymer rechargeable/removable battery. One battery comes with each Tempest BeltPack.

Battery Aging – All rechargeable batteries degrade over time with normal use (charging and discharging repeatedly). The total capacity of a battery gradually decreases with each charge/discharge cycle until it is small and unusable. As Lithium-Polymer batteries age, they may swell to some degree. This swelling is an indication of a battery that has gone beyond its useful life and needs to be replaced. Batteries that appear swollen or deformed should never be used. In addition, a battery that does not fit properly into the battery compartment or that has had its housing damaged should not be used and should be disposed of properly.

Battery Storage – When these batteries are stored, two things happen; first, their charge level gradually falls over time due to internal self discharge. Second, and much more importantly, the total capacity of the battery may be reduced if the battery charge level during storage is too high or too low. It is recommended to store batteries at 40-50% charge level and at room temperature when storing them for more than two weeks; this will minimize any permanent capacity loss during storage.

The rate of degradation of Lithium-Polymer batteries is strongly temperature-dependent; they degrade much faster if stored or used at higher temperatures. Elevated temperatures (whether from charging or ambient air) hasten capacity loss. Poor ventilation may increase temperatures, further shortening battery life.

Troubleshooting

Process of Elimination

When it comes to troubleshooting issues, it is all about the process of elimination. For example, if a noise or static is present on the FX system, it is likely one component causing the issue, and everyone else just hears it. Narrowing down the culprit is key to solving the issue. Start by methodically turning talk buttons off, unplugging headsets one at a time, or unplugging Wired BeltPacks to see if any of this eliminates the issue. Monitor the noise or issue as you do this so that you can identify what resolves the issue. Once you've narrowed the issue down, you can create a temporary work-around and also mark the item (headset, BeltPack, etc.) so you know what needs service after the game.

All my BeltPacks are "Searching…"

If all the BeltPacks from a particular BaseStation are "Searching…," this is most likely an issue with antenna placement or connectivity. A common mistake is to plug the antenna/transceiver into the "LAN" port on the back of each BaseStation—this is incorrect. It must always be plugged into the port labeled "Transceiver." Be sure the cable "clicks" into the connectors on both ends, otherwise it could fall out and cause system failure. It is also imperative that good line-of-sight be maintained from antenna to field. If your antenna is stuck behind thick or tinted windows, this can diminish your signal and hinder performance as well.

Some, but not all, of my BeltPacks are "Searching…"

Typically, when a single BeltPack is "Searching…" and the rest are operating properly, it means you have a good signal from the antenna. Therefore, your issue is likely isolated to the BeltPack itself. If the BeltPack has recently been serviced, it may need to be re-paired to its respective BaseStation. Otherwise, this could be an issue that requires service of that BeltPack.

I'm getting crosstalk on A/B (or C/D).

The most common cause for crosstalk on an FX system is due to the "Intercom Select" switches being in RTS mode on the front of the BaseStations. Each channel group (A/B and C/D) have their own switch per BaseStation. The proper setting can be determined by the number of green lights on your main rack unit. If you have (4) green lights at the top, then the system should be in BAL mode. If you have only (1) green light, then the system should be in "ClearCom" mode. In general, anytime a weird issue appears with the system it is good to confirm that this switch is in the proper position.

Wired BeltPack is dead or will not communicate.

If a Wired BeltPack is not powering on, it is likely not getting power from the Tempest Wired Interface. Confirm that the Tempest Wired Interface is powered ON by observing the green LED on the front of the Interface. If the green LED is on, then you have power, and the problem likely resides in either the cable, Wired BeltPack, or the port where that unit is currently plugged. Use process of elimination to determine where the fault lies.

Tempest Wired Interface or BaseStations have no power.

The main Press Box Unit receives its power through the Tempest Wired Interface. The BaseStations then receive their power from the Tempest Wired Interface. If the green light on the front of the Wired Interface is not lit, then try another wall power outlet or confirm that the DC IN cable is plugged in securely on the rear of the Wired Interface. If the TWI does have power (green light lit), but your FX BaseStation(s) are not powering on, then a cable has likely become unplugged in the rear of the main unit. Check to confirm that the DC OUT cables are securely connected to both the Wired Interface and the rear of the FX BaseStation(s).

Specifications

System Specifications

RF Frequency	2400 to 2480 MHz
RF Scheme	FHSS with TDMA
Effective Radiated Power	100 mW using 2 dBi antenna
Receiver Sensitivity	-100 dBm for 10-5 BER
Radio Certification	FCC Part 15, Canadian RSS-210, license free
Transmission Range	1,000 feet under ideal conditions (500 ft. to 900 ft. typical)
Audio Dynamic Range	>94 dB
Audio Frequency Response	300 Hz-3.8 KHz with proprietary audio voice shaping
System Latency	Less than 50 ms direct
Case Dimensions (inches)	Pelican Storm 2750i

BaseStation Specifications

Intercom Audio Channels	4
Full Duplex BeltPacks per BaseStation	5
Half-Duplex, Shared BeltPacks per Base	Unlimited
Number of Antenna Ports per BaseStation	2
Antenna Connector Type	RP-TNC
Number of Synchronized BaseStations	10
BaseStation/BeltPack Pairing	Via supplied Mini-jack/cable
Programming Port	USB
Stage Announce and GPO Closures	6 relays via DB15
2-Wire Intercom Interface	4 channels via XLR-3F with XLR-3M loop thru
2-Wire Compatibility	Clear-Com, RTS, and Balanced compatible
4-Wire/Matrix Connection	4 ports via RJ-45
Aux Input	¼" 3-conductor jack accepts -4 to +8 dB, balanced, transformer isolated
Aux Output	¼" 3-conductor jack nominal -4 to +8 dB, balanced, transformer isolated
Stage Announce Output	XLR-3M, nominal -4 to +8 dB, balanced, transformer isolated
Front-Panel Headset	4-pin male connector
Microphone Type	Dynamic or Electret, auto-selected
Front-Panel LCD Display	240 x 64 resolution, 32 level grayscale
Dimensions (inches)	1-RU unit, H 1.75" x W 19.0" x D 12"
Weight	10.5 lb.
Power Input	AC: 85-264 VAC at 50-60 Hertz, 15 Watts; DC: Battery, 11-32 VDC, 12 Watts
Operating Environment	-20° to 50°C (-4° to 122°F); 10% to 90% Humidity

Wireless BeltPack Specifications

Intercom Audio Channels	4
Headset Connector	4-pin male
Microphone Type	Dynamic or Electret, auto-selected
LCD Display	102 x 80 pixels
Antenna	Internal +2 dBi patch
Charger	Input 100-240 V, 0.3 A, 50-60 Hz Output 5 V, 1.25 A
Battery Charging	Via Mini USB connector using supplied charger
Battery Life, Rechargeable Lithium-Polymer	Up to 9+ hours
Charge Time for Lithium-Polymer Battery	2¾ hours in the BeltPack or 2½ hours in the 5-bay charger (from empty)
Optional Power	3 standard AA alkaline cells; battery life approximately 4 Hours
Dimensions (inches)	H 6.1" x W 4.0" x D 1.75"
Weight (with Lithium-Polymer Battery)	14.3 oz.
Operating Environment	-20° to 50°C (-4° to 122°F); 10% to 90% humidity

Customer Support

Technical Support for CoachComm Tempest FX products is offered from 8:00 a.m. to 5:00 p.m. Central Time, Monday through Friday. CoachComm, LLC support and service personnel are ready to help you with any issues you may have. All questions and/or requests for a Return Authorization Number should be directed to the following department:

Customer Service Department
CoachComm, LLC
Voice: 800-749-2761 or 334-321-2300
Fax: 866-793-SERV (7378) or 334-821-0397

Do not return any equipment directly to the factory without first obtaining a Return Authorization Number. Obtaining a Return Authorization Number will ensure that your equipment is handled promptly.

Returning Equipment for Repair or Maintenance

All shipments of CoachComm Tempest FX products should be made via UPS, or the best available shipper, prepaid and insured. The equipment should be shipped in the original packing carton; if that is not available, use any suitable container that is rigid and of adequate size to surround the equipment with at least four inches of shock-absorbing material. All shipments should be sent to the following address and must include a Return Authorization Number:

CoachComm, LLC
Customer Service Department
Attn: Return Authorization #
205 Technology Parkway
Auburn, AL 36830-0500

Warranty

CoachComm Tempest FX products are warranted by CoachComm, LLC to be free from defects in materials and workmanship for a period of two years from the date of sale. The sole obligation of CoachComm, LLC during the warranty period is to provide, without charge, parts and labor necessary to remedy covered defects appearing in products returned prepaid to CoachComm, LLC. All Tempest-branded Lithium-Polymer rechargeable batteries sold with this system are covered under the two-year system warranty, assuming all proper storage requirements have been followed. CoachComm's typical battery warranty provision is for eight months in all other circumstances. This warranty does not cover any defect, malfunction, or failure caused by circumstances beyond the control of CoachComm, LLC, including but not limited to unreasonable or negligent operation, abuse, accident, failure to follow instructions in the User Manual, defective or improper associated equipment, attempts at modification and/or repair not authorized by CoachComm, LLC, and shipping damage. Products with their serial numbers removed or effaced are not covered by this warranty. This limited warranty is the sole and exclusive express warranty given with respect to CoachComm Tempest FX products. It is the responsibility of the user to determine before purchase that this product is suitable for the user's intended purpose.

ANY AND ALL IMPLIED WARRANTIES, INCLUDING THE IMPLIED WARRANTY OF MERCHANTABILITY, ARE LIMITED TO THE DURATION OF THIS EXPRESS LIMITED WARRANTY.

NEITHER COACHCOMM, LLC NOR ANY DEALER WHO SELLS COACHCOMM PRODUCTS IS LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY KIND.

FCC Statement

This unit has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense. Commensurate with EIRP limits specified in FCC Rules 15.247b, this device may not be used with antennas that exceed 36 dB of gain in point-to-point applications or 16 dB of gain in multi-point applications. For use in RF exposure mobile or fixed conditions, the antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons.

Contains
Transmitter Module FCCID: HSW-2492

Important FCC and Safety Information

I. Digital Device Statement

a) CoachComm Tempest FX Systems have been tested and found to comply with the limits for Class A digital devices, pursuant to Part 15 of the Rules and Regulations of the U.S. Federal Communications Commission (the FCC). These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.

b) This equipment generates, uses, and can radiate radio-frequency energy. If not installed and used in accordance with CoachComm's instructions, it may cause harmful interference to radio communications.

c) Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

II. Intentional Radiator Statement

a) CoachComm Tempest FX Systems each employ a modular, low-power radio transceiver module that operates pursuant to Part 15 of the FCC's Rules. The module's FCC Identifier is either HSW-2410M, HSW-2410P, or HSW-2492, depending on which module CoachComm has employed in manufacturing a given unit.

b) Operation is subject to the following conditions:

   i) A Tempest FX system may not cause harmful interference to other users of the radio spectrum.

   ii) Upon notification by a representative of the FCC that a Tempest FX system is causing harmful interference, use of the system must be suspended. Operation must not resume until the condition causing the harmful interference has been corrected.

   iii) A Tempest FX system must accept any interference received, including interference that may cause undesired operation.

c) Tempest FX Wireless BeltPacks contain an internal antenna that is not user replaceable. Tempest FX BaseStations must be used only with CoachComm-approved antenna: either the standard four-inch Rubber Whip Antenna supplied with every system, or with the Directional Antenna that is available from CoachComm as an option. Use of any non-approved antenna, or any modification to any part of a Tempest FX unit, violates the Tempest FX system's warranty, and also constitutes a violation of the FCC's Rules and Regulations and of § 302 of the Communications Act of 1934, as amended.

III. RF-Exposure Statement

a) The FCC has adopted limits on the exposure to radio-frequency energy from devices such as the CoachComm Tempest FX system. The FCC adopted these limits by drawing upon the efforts of independent scientific organizations that have engaged in periodic evaluations of the scientific literature. The FCC's standards are intended to assure the safety of all persons, regardless of age or health.

b) CoachComm has designed and manufactured the Tempest FX system to comply with the FCC's exposure limits. When used with CoachComm-approved antennas, and when used in accordance with CoachComm's instructions, the Tempest FX system complies with those exposure limits. No other antennas must be used with the Tempest FX system.

c) CoachComm has designed the Tempest FX BeltPack unit to be worn and used in close proximity to the human body—what the FCC calls a "portable" use. The BeltPack unit complies with FCC exposure limits for portable use.

d) To ensure compliance with FCC exposure limits, no person must come closer than 26 cm (ten inches) from either the standard Omni-directional Whip Antenna supplied by CoachComm, or the optional Directional Antenna available from CoachComm, whichever of the two is used with the Tempest FX system. If used, the Directional Antenna must be mounted and aimed so that people do not obstruct the antenna's view of the sideline and the playing field.

e) If two Tempest FX BaseStations are employed together, the antenna systems, should be placed at least four feet apart from each other. To ensure compliance with FCC exposure limits, no person must come closer than 26 cm (ten inches) from the antenna connected to either of the Tempest FX BaseStations. As before, the optional Directional Antenna available from CoachComm, if used with either or both of the Tempest FX BaseStations in a two-BaseStation Tempest FX system, must be mounted and aimed so that people do not obstruct either Directional Antenna's view of the sideline and the playing field.

IV. Safety Information

a) When using the optional Directional Antenna, do not install it near any exposed electrical wiring.

b) Route and secure any and all wires and cables so that they do not pose a tripping hazard.

About CoachComm, LLC

CoachComm, LLC is the established leader in sports technology, providing wireless headsets, video equipment, and game analysis software to athletic programs nationwide. CoachComm, LLC is proud to be the wireless sideline communication provider for more than 95% of D1-A colleges as well as thousands of high school and small college football programs across the country. CoachComm, LLC has also partnered with industry leaders such as Gameplan, GoPro, Panasonic, Canon, JVC, Sony, Eiki, and others to offer the very best in video and game analysis solutions. In addition to our external partners, our in-house development team is constantly looking for ways to revolutionize sports technology.

Great people, products and service… CoachComm, LLC, the only name you need to know in sports electronics.

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